

ABSTRACT OF THE DISCLOSURE

A method for programming and erasing a non-volatile memory with a nitride tunneling layer is described. The non-volatile memory is programmed by applying a first voltage to the gate and grounding the substrate to turn on a channel between the source and the drain, and applying a second voltage to the drain and grounding the source to induce a current in the channel and thereby to generate hot electrons therein. The hot electrons are injected into a charge-trapping layer of the non-volatile and trapped therein through the nitride tunneling layer. The non-volatile memory is erased by applying a first positive bias to the drain, applying a second positive bias to the gate, and grounding the source and the substrate to generate hot electron holes in the channel region. The hot electron holes are injected into the charge-trapping layer through the nitride tunneling layer.